

FISKE FUND PRIZE ESSAY.

ART. XI.—*What are the Causes and Nature of that Disease incident to Pregnancy and Lactation, characterized by Inflammation and Ulceration of the Mouth and Fauces, usually accompanied by Anorexia, Emaciation, and Diarrhœa; and what is the best mode of treatment?* By DAVID HUTCHINSON, M. D., of Mooresville, Morgan County, Ind. The Dissertation to which the Fiske Fund Prize was awarded, June 3d, 1857.¹ (Published by request of the Rhode Island Medical Society.)

THAT a disease of this character has of late years existed to a great extent, especially in the Western States, and has excited considerable interest among physicians, is evident from the frequent notices taken of it by Western journals. But it is not a disease of recent origin. Marshall Hall has admirably described some of its symptoms. Abercrombie, in his inimitable work on the stomach and bowels, details a case, which, from the description, appears to have been of this character. In the lectures of Stokes and Bell, it is styled stomatitis nutricum; in Wood's Practice, nursing sore-mouth; and more recently by journal writers, stomatitis materna. Dr. E. Hale gave a description of it, to the Boston Medical Society, in 1830, and Dr. Bakus in the *American Journal of the Medical Sciences* in 1841. Since that time, several short essays on the disease have appeared in the medical journals of the United States. The disease has become more frequent, more closely observed, and better understood; but the literature of the subject is, as yet, scanty. Dr. Shields, of New Albany, Indiana, makes the statement (on the authority of the editor of the *American Journal of the Medical Sciences*), that neither the late Dr. Dewees, of Philadelphia, nor any of the physicians of that city, had ever seen a case of it, but that it was observed by Dr. A. Clapp, of New Albany, as far back as 1825; thus confirming the statement that the disease prevails more in some localities than others. That it is not peculiar to this country is evident from the writings of Abercrombie. That

¹ The Trustees of the Fiske Fund, at the annual meeting of the Rhode Island Medical Society, held at Providence, June 3, 1857, announced that they had awarded to the author of the dissertation bearing the motto—

“*Wheat from the fields of science, and cockles from my own farm,*”

the premium of one hundred dollars, by them offered for the best dissertation on the following subjects, viz: “*What are the Causes and Nature of that Disease incident to Pregnancy and Lactation, characterized by inflammation and Ulceration of the Mouth and Fauces; usually accompanied by Anorexia, Emaciation, and Diarrhœa; and what is the best mode of treatment?*”

And upon breaking the seal of the accompanying packet they learned that the successful competitor was David Hutchinson, M. D., of Mooresville, Morgan County, Indiana.

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No. LXVIII.—OCT. 1857.

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we may answer the first question propounded, "What are the causes and nature of this affection, incident to pregnancy and lactation?" we will first point out the symptoms and course of the disease, together with the anatomical lesions discovered by post-mortem examinations.

Although it is conceded by all writers on this disease that the affection of the mouth is only symptomatic of a previous pathological condition of the general system, yet the affection of the mouth is usually the first symptom that awakens the patient's attention. It generally comes on very suddenly, and, although she may have previously suffered from anorexia and various gastric disturbances, yet neither the physician's nor patient's attention is attracted to her condition till after the buccal symptoms ensue.

Dr. Byford (*American Journal of the Medical Sciences*) makes three varieties of this disease, taking the affection of the mouth as the basis of his division. These varieties differ from each other only in grade or severity; all pointing to the condition of the general system and the intensity of the disease. The affection of the mouth is but a part of the many forms that this protean disease assumes, for, as we shall see in the sequel, the disease is migratory, and spends its force on all the mucous surfaces. It is therefore most appropriate to treat of it according to its intensity or grade, and divide it into the acute and subacute or chronic forms.

The acute form generally makes its appearance either immediately before or shortly after delivery; the subacute some weeks or months afterwards. In both forms various gastric derangements, such as acid eructations, pyrosis, costiveness, alternating with diarrhoea, generally precede the affection of the mouth. In the acute form, the mouth affection generally begins with a scalding sensation, extending from the mouth down the œsophagus to the stomach, accompanied by a profuse discharge of hot burning saliva, difficult and painful deglutition; warm and hot fluids cannot be borne; there is loss of appetite and taste; tenseness and increased frequency of pulse; tongue red around the edges, and in patches on the dorsum. The redness speedily spreads throughout the whole cavity of the mouth and fauces. The parts are of a scarlet red colour, but as a general thing, not much, if at all swollen. This appearance may be of transient duration, lasting only probably for a few hours, more generally for several days, when it disappears, to be again removed in a very short time. But more generally, with this diffuse inflammation, the inside of the cheeks, gums, and under part of the tongue become covered with a crop of aphthæ or vesicles, which burst and become ulcers. The duration of this crop of vesicles and ulcers is generally about eight or ten days, and sometimes longer, when they will frequently disappear, to be succeeded by another crop of vesicles and ulcers as distressing as the former. In some cases the whole force of the attack is concentrated on the tongue, either on its side or under part; and begins from an inflamed point, or a fissure, or the bursting of a vesicle, which rapidly ulcerates, and spends its whole force on the one part, until the tongue becomes almost half amputated by a ragged notch. Suddenly this ulceration ceases, the cavity granulates, fills up, and heals; but the organ is left distorted. The whole force of the paroxysm is concentrated on this one point; the constitution suffers less than when the ulcers are more numerous and diffused over the buccal cavity. The disease would seem to have located itself, and its consequences are less to be feared, for when the stomatitis is more general, the inflammation is more disposed to extend itself along the adjacent mucous surfaces to all the neighbouring cavities. We have seen it travel from the mouth down through the pharynx and œsophagus to the stomach, thence through the alimentary canal its whole length; most

usually locating itself in the colon, and spending its force on that extensive mucous surface, and frequently destroying the patient by ulceration of its coats. Again we have in several instances known it pass through the larynx, trachea, and into the bronchia, and either establish inflammation in some portion of these tubes, or awaken into action disease of the lungs. It sometimes follows the nasal passages into the different cavities of the skull and maxillary antrum, and there induces permanent inflammation; or it may pass through the Eustachian tube to the tympanum, and thence to the mastoid cells. Dr. Byford states that he had seen a case where permanent deafness of one ear, and exfoliation of bone occurred. It also attacks the mucous surfaces of the vagina. Dr. Brainard had seen cases in which ulcerations of the vagina, alternated with diarrhœa. I have also observed cases in which ulcers of the mouth alternated with diarrhœa and vaginal ulcerations. Indeed, there is not a mucous surface but is liable to be attacked with this ubiquitous inflammation.

In addition to the local symptoms presented by the mouth, fauces, &c., derangement of the digestive and assimilating organs claims our first and earliest attention. As before remarked, the affection of the mouth is usually the first symptom that awakens the patient's attention; but nevertheless, derangement of the stomach and bowels always exists for some time prior to the occurrence of the buccal symptoms. I have invariably found that the greater the gastric derangements, the more extensive and difficult to heal were the ulcerations of the mouth. For weeks—it may be for months—before any affection of the mouth supervenes, the patient is much troubled with flatulent and acid eructations. She has a sinking feeling, a sensation of weakness at the epigastrium, or else a burning and feeling of distension, which requires her to loosen her dress to relieve the epigastric uneasiness. She also has slight febrile irritation, especially in the evening, with increased tenseness and frequency of the pulse. An acid fluid is generated in the stomach, and it would appear that everything the patient eats takes on the fermentative process; occasionally vomiting occurs; the bowels are either confined or too loose, and we would readily infer that the patient laboured under dyspepsia in one of its many protean forms.

Accompanying these symptoms are those presented by the condition of the urine and urinary organs. I found, on questioning my patients, that before the accession of a paroxysm, either of the sore-mouth or diarrhœa, that they laboured under painful and difficult micturition, which at times became distressing, and prevented sleep at night. They would pass only small quantities of urine at a time, not more than a tablespoonful or two, which generally attracted their attention from the highness of its colour, and amount of the deposit it threw down on standing. Sometimes this condition of the urine and urinary organs exists for several days before the accession of a paroxysm either of the sore-mouth or diarrhœa; for let it be borne in mind, that when diarrhœa ensues there is but little inflammation of the mouth; and again, when the mouth becomes inflamed, the bowels are generally confined. And I always found that the urinary difficulty was in a proportionate ratio to the intensity of the paroxysm either of the diarrhœa or sore-mouth.

I have examined the urine chemically and with the microscope in quite a number of cases. The following conditions were universally present:—

1. It is highly acid, instantly changing blue test paper to a deep red.
2. It is above the normal specific gravity, varying from 1024 to 1030.
3. The deposit thrown down on standing is urate of ammonia, and urate of soda, as revealed by frequent microscopic examinations in every case that

came under my care. In one case, a lady at the sixth month of utero-gestation applied to me for the painful and scanty micturition. She had the sore-mouth in a previous pregnancy and lactations, in a very severe form. She again had tenderness of the mouth and gums, and slight redness of the tongue, and occasionally diarrhoea. She said that she knew that the sore-mouth was about to come on from the urinary difficulty. She described the urine as passing only in small quantities, very red, and containing a copious sediment. I procured four ounces of the urine, which was very acid, and of high specific gravity, 1030. Under the microscope the figures of urate of ammonia, in the globular form, were very numerous but very small. There were also uriniferous tubules and epithelial cells. Dr. Lockhart, a very respectable neighbouring practitioner, and likewise a microscopist, had a number of cases under his care. He examined the urine in seven cases, and his observations correspond with my own. In all at some stage of the disease severe pain was felt in passing water, doubtless on account of an excess of acid (uric acid or its salts, urate of ammonia or urate of soda); such being the fact in the cases tested. In one of his cases the disease persisted for eight months, and, during the latter part of the term of her sickness, albumen was found in the urine in connection with epithelial cells, altered blood globules, and uriniferous tubules.

To prove the correctness of the microscopical observations, I subjected the urine to the test of heat, and when it reached the boiling point the sediment was dissolved, and smelled ammoniacal; thus proving that the deposit consisted of urate of ammonia.

Among the formidable array of symptoms which attended this affection, none is more distressing than the diarrhoea, which rapidly exhausts the patient, and produces emaciation, so that she becomes of a pale earthy colour. The discharges from the bowels are generally liquid, and in cases that persist for any length of time, mucus is often present; and when the case is about to terminate fatally, they are frequently tinged with blood. There are also colic pains and tenderness of the abdomen in cases of this description.

In the subacute form the patient is not troubled with so much intestinal disorder; she loses flesh and strength; the countenance becomes pallid; one or two ulcers are generally found about the mouth and tongue; there is a peculiar sense of weakness at the epigastrium; the bowels are usually costive, and although she suffers from flatulence and indigestion, yet the appetite remains tolerably good. We have known this form to persist during the whole period of lactation, and the patient still attend to her household duties.

Anatomical Lesions.—In the few dissections that have been made of patients that have died of this affection, ulcerations of the mucous membrane of the intestinal canal have existed in every case. Dr. Hubbard, of Ashtabula County, Ohio, saw at a post-mortem of a well-marked case, five ulcers, without any other morbid appearance to account for the fatal result. The buccal aphthæ preceded by several months the diarrhoea of which the patient died. The ulcers were circular, about three lines in diameter, indurated, and very deep. Three of them were situated in the colon, and two in the ilium; the surrounding surfaces were healthy, or nearly so. In the *Transactions* of the Indiana State Medical Society for 1856, Dr. McLean relates the post-mortem of a case in which the mouth and fauces were entirely denuded of their mucous coat, with numerous patches of ulceration extending throughout the œsophagus. The stomach was also almost completely denuded of its mucous coat, with numerous patches of ulceration extending deep into its muscular tissue. A small space around the pyloric orifice was the only healthy por-

tion. The duodenum was healthy. There were a few inflammatory patches in the colon. The bladder had traces of inflammation around its neck; and a few patches of ulceration existed in the vagina.

The following morbid appearances were found in a case which for a series of years was under my observation: In January, 1851, the patient was attacked, two weeks before delivery, with this affection, in a very severe form. Under treatment it disappeared, and was renewed a few days after confinement. It disappeared again, and was renewed afresh in two more weeks. The discharge of saliva was very profuse, the ulcers in the mouth numerous. She had hectic and night-sweats, and sank very low; doubts were entertained of her recovery, but under a tonic treatment she did recover, and continued to nurse her babe. She became again pregnant, and during pregnancy was threatened with the disease. She again used a tonic and nutritive treatment, which was continued during the latter months of gestation; and although there were frequently symptoms of the disease, yet by the treatment it was kept in subjection, and she continued to nurse her child. In 1854 she was again pregnant, and suffered from indigestion and stomach derangements. About the sixth month diarrhoea came on, which persisted in despite of judicious treatment, and she died three months after delivery, the case terminating fatally by convulsions.

I have been thus particular in the narration of the case on account of the extensive local lesions.

The autopsy was made seventeen hours after death.

The peritoneum exhibited evidences of inflammation; general appearance pink colour; bloodvessels of injected.

Adhesion of pancreas, throughout their whole extent to duodenum.

Structure of kidneys softened, congested, and pus in pelvis of; greatest quantity in right one.

In ureters, traces of inflammation one and a half inch in extent.

Want of integrity of colon; mucous membrane wanting in many places, the ulcerative process being so complete.

Cæcum as colon; small intestines and stomach for the most part normal.

Spleen completely softened, but for its serous covering would barely hold together; small collections of pus throughout its interior.

Liver enlarged; softened in the inferior portion of the right lobe, which was also congested, and showed signs of recent inflammation. A melanotic tumour, three-fourths of an inch in diameter, was found on its convex surface. Gall-bladder filled with black grumous material, about a gill in quantity. Weight of liver four pounds and two ounces.

In this case the patient was never free of the disease since the first attack in 1851, and although in the last illness the mouth was but little affected, yet it was evident that it was the same affection that had located itself in the colon; for whenever the diarrhoea would cease a few days, the buccal symptoms would appear.

Causes and Nature of.—The causes may be divided into two kinds, extrinsic and intrinsic, or remote and proximate.

1st. *Extrinsic Causes.*—Dr. Dunglison makes the remark that the disease prevails more in some localities than others. There are many practitioners that have never seen a case of it, while others have frequently had to contend with its intractable character. The disease is either of recent origin, or it has, to a great extent, escaped the observation of our predecessors; at least, during the last few years, it has attracted the attention of the profession. In some localities, it has been almost endemic among pregnant and nursing

females. Why is it that, during the last few years, it should have become more frequent? It was rarely seen in the Western States until after the appearance of dysentery and diarrhoea, in 1849, '50, '1, '2, '3 and '4. During the ten years preceding 1849 but two cases, of a mild character, came under my observation. After the appearance of dysentery, the affection became more common. Indeed I found, in many instances, the affection of the mouth associated with dysenteric symptoms. In those years there existed an epidemic constitution of atmosphere, producing a proclivity to disease of the mucous membranes. Indeed, during those years aphthous stomatitis was not an unfrequent accompaniment of dysentery in its latter stages; and in several instances cancrum oris supervened in children. Hence we infer that an epidemic constitution of atmosphere, producing a proclivity to disease of the mucous membranes, especially of the intestinal canal, is one of the extrinsic causes of this affection, peculiar to pregnancy and lactation. Since dysentery and other diseases of the digestive tube have been less frequent, we have seldom seen this affection, and during the last two years have been rarely called to treat it. Its prevailing more in some localities than others may be attributable to surrounding circumstances, as the quality of the soil, bodies of stagnant water, &c. Dysentery and diarrhoea have prevailed more in some localities than others, and as we have marked a coincidence in the prevalence of the two affections, we may attribute their prevailing in particular localities to similar causes. We are, however, fully convinced that the malaria that produces remittent and intermittent fevers is not a cause of this disease; for, when remittents and intermittents prevail, this affection is hardly ever seen.

2d. *Intrinsic Causes.*—These are to be sought for in the diathesis and constitution of the patient, and in the changes produced on the system by the functions of gestation and lactation. Those that are usually attacked with this affection are of a feeble, delicate constitution, and have previously suffered from debilitating causes, such as hemorrhages, leucorrhœa, and are generally either of the scrofulous or tubercular constitution, and labour under debility and anæmia. Young women of this constitution are frequently the subjects of it in the first pregnancy; and I have observed that frequent pregnancies and lactations are the most common sources of this affection. The most inveterate case that I have ever seen, the autopsy of which was given in the preceding part of the essay, gave birth to eleven mature children in seventeen years. Stomatitis, in a severe form, appeared with the ninth child, and her system never recovered from its consequences.

Youth may be regarded as a cause. Doctor Lockhart has given me some interesting statistics on this point. In twelve of his cases, the disease appeared in four at the third child, the ages of the mothers being respectively 24, 26, 22, 23. In six with the first child; ages 17, 20, 22, 20, 21. In two with the fourth child; ages of each 25. The cases reported by Brainard, in the *Northwestern Medical and Surgical Journal*, were all young women. My own cases were young females that procreated rapidly, and whose constitutions were illy adapted to the task of utero-gestation and lactation.

Another intrinsic cause is the changes effected in the system by gestation and lactation.

Dr. Wood says that the cause of this disease is some influence exerted on the system by the advanced state of pregnancy and lactation; what is the nature of this influence is unknown. Although pregnancy cannot be said to be a pathological condition, yet in certain constitutions that are inadequate to support the demands that are made on the system by that function, we find more or less general derangement ensues, which is produced by the new pro-

cess of development that is going on in the gravid uterus. In the early stages of pregnancy, the stomach sympathizes with the gravid uterus. Nausea and vomiting ensue, which deprive the female of sufficient nourishment for her own system. Depraved appetite is a frequent accompaniment. The sensibility of the nutritive functions are changed, she emaciates and becomes thin, the blood becomes impoverished, and it is more than probable that the blood impoverishment is the source of the disease, the unknown influence of which Dr. Wood speaks. Andral and Gavarret analyzed the blood of thirty-four pregnant women. In thirty-two of the cases they found the red globules below the healthy mean standard, in six of which they ranged from 120 to 125 in 1000, and in twenty-six from 95 to 120. They also found that for the first six months the fibrin was below the natural quantity, varying from 1.9 to 2.9, while during the last three months it exceeded it, varying from 2.9 to 4.8, and averaging nearly 4. Beequerel and Rodier analyzed the blood of nine pregnant women, viz.: one at the fourth month, five at five months and a half, one at six, and one at seven months. The maxima, minima, and mean results are given in the following table, copied from *Simon's Chemistry*:—

	Mean.	Max.	Min.
Density of defibrinated blood	1051.5	1055.1	1046.2
Density of serum	1025.5	1026.8	1023.6
Water	801.6		
Fibrin	3.50	4.	2.5
Albumen	66.1	68.8	62.4
Blood corpuscles	111.8	127.1	87.7
Extractive matter and salts	6.6	8.7	4.7
Fat	1.922	2.519	1.158
Consisting of serolin	variable	0.108	0.018
Phosphorized fat	0.646	0.863	0.381
Cholesterine	0.061	0.225	0.030
Saponified fat	1.195	1.323	0.737

The salts in 1000 parts of blood consisted of

Chloride of sodium	3.2	3.9	2.3
Other soluble salts	2.4	2.8	1.8
Phosphates	0.425	0.690	0.282
Iron	0.449	0.490	0.370

From these analyses they conclude that pregnancy exercises a marked influence on the composition of the blood. The density both of the defibrinated blood and of the serum is diminished, the water and the phosphorized fat¹ are increased, while the corpuscles and albumen are diminished, thus showing that pregnancy impoverishes the blood.

Mr. West says that during pregnancy, even in a healthy woman, certain changes in the blood (a diminution of its red particles, and an increase of its watery elements) are of constant occurrence; while, in some instances, those changes are so considerable as to give rise to disorder of the general health, precisely similar in all its characters to chlorosis. The growth of the womb, the development of the fœtus are, indeed, accomplished, for they are subject to a law not easily broken through; but they are accomplished at the expense of the woman's constitution, and leave her often incapable of suckling her infant, and probably liable to all that class of inflammatory affections, the remote cause of which (as, for instance, phlegmasia dolens) is to be sought for in the blood. M. Cazeaux, who has patiently examined this condition of

¹ Phosphorized fat is always abundant in impoverished blood.

pregnancy, says that hydræmia or serous polyæmia is the most frequent cause of the functional disturbances that take place in pregnancy, and which are usually attributed to plethora, the analyses of the blood of pregnant women exhibiting a diminution of globules and an increase of water, differing only from chlorosis by containing an increased quantity of fibrin. And he further remarks that the functional disturbances of pregnancy resemble those of chlorosis, and that the effect of treatment confirms this view; that it is from the employment of iron and animal food that real benefit is obtained. M. Jacquemier, who has paid considerable attention to this subject, states that all the analogy that exists between chlorosis and pregnancy is that, after the middle period of pregnancy, women exhibit the commencement of anæmia; and from the examination of the blood of two hundred women in the eighth and ninth months of pregnancy, he found a diminution of the corpuscles, but not to the same extent as in chlorosis. And, among many hundred women auscultated at the Maternité, he only met with the carotid souffle in two or three. Andral says that when the corpuscles are below 80 in the 1000, that the *bruit de soufflet* is a constant phenomenon. It is often heard when the cipher oscillates between 80 and 100, and becomes more rare when the physiological mean is approached, and when it is reached ceases altogether. Mr. Williams says that the *bruit de soufflet* is often present in pregnant women, and corresponds with the frequent diminution of the red corpuscles in them. Other authorities might be cited to show the altered condition of the blood in pregnancy, amongst whom is Tyler Smith. Indeed, it is a fact well established that the red corpuscles are diminished and the fibrin increased. The buffy coat of the blood of pregnant females is a fact familiar to every one, and hence there exists a condition of blood in pregnancy which renders the system liable to inflammations; and we infer that this condition of blood induced by pregnancy is the intrinsic fountain of this disease incident to pregnancy and lactation.

Another probable intrinsic cause from our observations, is disease of the spleen. The most intractable cases that we have seen had this accompaniment. Disease of the spleen produces a cachectic condition of system, not unfrequently accompanied with ulceration of the month. In one of our cases the affection of the month, which alternated with diarrhoea, persisted till after the subsidence of the splenic affection.

Pathology and Nature.—At an early period of pregnancy, the stomach sympathizes with the gravid uterus; the new function that the uterus has to perform in the development of the fœtus, through its nervous connection with the stomach, produces various sympathetic disturbances of the latter organ. Nausea, vomiting, diarrhoea, anorexia, acidity of stomach, and pyrosis, are the frequent results of these extensive sympathies. Hence nutrition becomes imperfect, and consequently there is a diminution of the nutritive materials that supply the blood to repair the waste of the tissues. An almost poisonous influence (says Tyler Smyth) seems to be exerted by the gravid uterus in some constitutions, consequently the blood becomes impoverished from the impaired nutrition produced by the deranged digestive organs. And when we consider that the subjects of this affection have at best but feeble digestive organs, the chyle globules must be imperfect, and consequently the blood globules imperfect. We hence see that the function of nutrition is inadequate to the demands of the system; more especially as there is a new function to perform by the blood, not only in the nourishment and development of the fœtus, but that of the uterus and appendages also. In the unimpregnated state the uterus is a very small organ, while during the period of

utero-gestation it attains to an astonishing size, its capacity being increased a little more than 519 times, and its solid substance in the ratio of twelve to one; its bloodvessels are much enlarged, and many vessels that previously were impervious to red blood, now circulate it freely. For the development of the fœtus, uterus, and appendages, a heavy draught is made on the blood, especially in the latter months, when the increase of the fœtus, uterus, and appendages is much more rapid than in the early months of utero-gestation. There exists of necessity an increased consumption of red corpuscles and an increase of fibrin from the metamorphosis that is going on in the uterus. Simon, in his chemistry of man, gives us some interesting facts on this subject. He says that Denis made an analysis of the blood of the mother and of the fœtus; he found that of the fœtus richer in solid constituents and in blood-corpuscles than that of the mother. The corpuscles in the blood of the mother were 139 parts in the 1000, while of the fœtus 222; also the quantity of iron was greater in the blood of the fœtus than of the mother, the proportion being in the ratio of 1 to 2.5. Also the mass of the blood of the fœtus increases in a very rapid ratio with its development, the proportion of corpuscles is greater, and the quantity of water less, than at any subsequent period of life; and for some time after birth the proportion of corpuscles and of iron is above the ordinary standard. The facts, to a great extent, account for the blood impoverishment, and also for the fact that always attends cases of this affection, that the children of females who suffer from it are generally large, and what might be called well nourished. We thus infer that there exists a disproportionate ratio between the demands that are made on the blood by the function of utero-gestation and the nourishment of the system to supply those demands. After parturition, the drain on the already impoverished blood is kept up by lactation. And here again we find that the researches of Simon and other chemists throw much light on the influence of lactation on the female system. From their analyses we find that the solid constituents of woman's milk range from a third to one-fourth per cent. of the whole fluid; the salts having iron in their composition, besides butter, casein, and sugar of milk. We further find that the solid constituents of milk increase with the increasing age of the child. Simon gives fourteen analyses of the milk of one woman, made from the 31st of August to the 4th of January, a space of a little over four months, during which time the solid constituents of milk varied from 86 to 1.38, 6, the highest amount of solid constituents being on the 31st of December, and the lowest on the 11th of November. It is however to be remarked, that the solid constituents of the milk must and do vary with the quality and quantity of the food taken by the mother. We have always found that in this affection of pregnancy and lactation, that the lacteal secretion is abundant and of rich quality; and the infants, from their size and plumpness, gave evidence of such being the case. Hence, we infer that the impoverished state of blood produced by pregnancy is continued by lactation. We are therefore led to regard this affection of pregnancy and lactation as an inflammation—*sui generis*—of the mucous surfaces, produced and continued by an impoverished condition of the blood; which inflammation takes on the ulcerative process, the previously imperfectly nourished tissues presenting but feeble resistance to the ravages of the inflammation. We find in this disease a similar condition of blood to that which occurs in other inflammations, such as acute rheumatism, phlegmasia dolens, and other diseases as tuberculosis, &c., viz: a diminution of blood-corpuscles, and an increase of fibrin. We might cite numerous authorities to establish this point. M. Paget shows the similarity in appearance

in the red blood cells, in acute rheumatism, and in pregnancy. In short, the chemical constituents of the blood in pregnancy are such as is known to exist in many inflammations. Rokitansky speaks of an aphthous variety of fibrinous crasis of the blood, which gives rise to the exudations of muguet, diphtheritis, some dysenteries, and of hospital gangrene.

The fibrinous condition of the blood exciting the inflammation, and consequent ulceration of the tissues of the mucous surfaces, and the diminished red corpuscles determining the character of the inflammation attendant on this affection incident to pregnancy and lactation. The influence of treatment bears us out in this view; the condition of the urine is to the same point; its specific gravity is above the normal standard, and loaded with waters, showing that a great waste of the tissues is going on. All these changes are in accordance with what we know of some inflammations. Hence, by the changes in the blood we account for its migratory character. It is a well known pathological fact, that there exists a blood crasis in all diseases of a migratory character, although our means of research may as yet be insufficient to determine in what that crasis consists. Rheumatism is migratory, so is erysipelas. The researches of modern pathologists tend to establish their nature as consisting in the presence of a morbid principle in the blood. Andral and Gavarret, in their researches, show that the blood in rheumatism differs but little in the relation of corpuscles to fibrin from that of pregnancy; and from their analyses we find the same pathological relation of the corpuscles and fibrin in erysipelas. The course and symptoms of this disease incident to pregnancy and lactation, point to a blood crasis. Why else should it attack all the mucous surfaces in alternate succession? We have seen it suddenly make its appearance in the mouth, and as suddenly disappear and attack the mucous surfaces of the intestinal canal and vagina. Is it not more than probable that the aphthæ which appear in the mouth and intestinal canal, and degenerate into ulcers, and keep up diarrhœa, &c., may be a fibrinous exudation occasioned by the fibrinous condition of the blood. The influence of treatment brings us to such a conclusion, as we shall see in the sequel, that those remedies that decrease the fibrin of the blood are the most beneficial in this peculiar affection.

Recapitulation of the Views advanced.—1. Imperfect nutrition of the system, occasioned by the disturbed condition of the digestive organs, produced by sympathy with the gravid uterus.

2. An altered state of the blood, produced by pregnancy, and kept up by lactation. This condition of the blood being such as is known to exist in inflammations.

3. Its migratory character is dependent on the condition of the blood.

Diagnosis.—This affection may be distinguished from other forms of stomatitis by a burning sensation in the mouth, as if it had been scalded, which is greatly aggravated by hot drinks; attended at first with redness of the mouth and tongue, and followed by aphthæ and ulcerations of the buccal cavity. In some cases there is a diffused redness of the mucous membrane of the mouth, instead of ulcers. These symptoms are generally attended, and often preceded by a burning sensation in the stomach, pyrosis, indigestion, and occasionally vomiting. The bowels are either constipated, or obstinate diarrhœa attends. The disease is confined to pregnancy and lactation, although it has been said to attack those that were not in those conditions, and even the male subject; yet we have seen it in no other conditions but those of pregnancy and lactation, and would infer that it had been confounded with some other form of stomatitis. In addition to the foregoing symptoms,

its migratory character is highly diagnostic, and also the frequent and painful micturition which frequently precedes the affection of the mouth or diarrhœa.

Prognosis.—Always uncertain as to the final result. Although there is generally not any immediate indications of danger, yet such is the liability of the mucous structures to inflammation that the condition of the patient may always be considered precarious while the disease persists. When the disease extends to the larynx, trachea, or bronchial tubes, the patient may either die from the intensity of the inflammation, or at a remote period consumption ensues, usually in one or two years. But the patient is more apt to perish from the intestinal affection; when the diarrhœa persists, in despite of judicious treatment, and the discharges are mucous, tinged with blood, indicating ulceration of the bowels, a fatal result may be anticipated. In the subacute form, when the inflammation is confined to the mouth, and the patient measurably retains her strength, a favourable result may be expected. As a result of our observation but few recover a good state of health, unless they cease from the functions of utero-gestation and lactation.

Treatment.—From the views advanced of the pathology and nature of this disease, the indications of treatment are the following:—

1st. To correct and improve the digestive organs, and restore them to their normal functions.

2d. To correct the inflammatory condition of the system by supplying the blood with such nutriment and medicines as will augment the blood-corpuscles and decrease the fibrin.

3d. To remove the causes.

4th. To prevent the secondary affections, viz: the extension of the disease to those organs important to the continuance of life.

Indication 1st. For the fulfilment of the first indication we are possessed of a variety of means, some of which we will find adapted to the circumstances of the various cases as they may present themselves. As before remarked, we find that the greatest number of cases labour under acid eructations, gastric derangements, pyrosis, burning at the epigastrium, and either constipation or diarrhœa. To correct the acid condition of stomach, antacids and alkalies produce the most favourable influence; among the best of these is the bicarbonate of soda, which neutralizes the acid of the stomach, and at the same time the excess of acid in the urine. It may be frequently given during the day, either before or immediately after meals. In some cases I have found liquor calcis answer equally as well; it produces quite a soothing influence on the stomach and bowels given in the dose of a tablespoonful three or four times a day. Half a drachm of liquor potassæ, given in two or three tablespoonfuls of infusion of cascarilla bark, is also an admirable prescription, not only to correct the acid condition of the stomach, but also to improve its digestive powers. We have also used the bicarbonate of potass with good effects; it is especially useful when the bowels are constipated, from its laxative qualities. Alkalies answer the twofold purpose of neutralizing the acid condition of the stomach, and at the same time the acid state of the urine. The urine becomes more copious and clear after their use, and a diminution of the gastric disturbances and an evident improvement of the mouth usually follows. Alkalies are particularly valuable when the bowels are confined, but when diarrhœa ensues they have to be used with caution. They correct the acid state of the stomach temporarily, but do not prevent the generation of acid in the stomach. Consequently we must resort to such remedies as will prevent the secretion of acid by the stomach. For this purpose the vegetable and mineral astringents are the most efficient. Such as kino, logwood, catechu, krame-

ria, and bismuth, &c., all of which diminish the secretions of the stomach and intestinal canal. We have found the most beneficial effects from logwood, krameria and bismuth, an infusion of an ounce of logwood and a drachm of cinnamon in ten ounces of water and strained, of which from one to two ounces may be given for a dose before meals. We have tried kino and krameria, but prefer the logwood; patients take it more readily than either of the others, and its astringency is nearly the same. But to improve the digestive powers of the stomach, nothing is equal to the trisnitrate of bismuth in combination with an antacid. It not only soothes the mucous membrane of the stomach, probably by sheathing it from the acid generated by the stomach, but it also produces an anæsthetic effect on the sentient nerves of the stomach, which, in the indigestion that accompanies this affection, seem to be in a state of exalted sensibility. Bismuth restrains the secretions of the stomach, and also of the intestinal canal; it may be combined with columba powder with an admirable effect. Astringents are not only valuable in restraining the acid secretions of the stomach, which give rise to many unpleasant sensations in this affection, but they also serve to prevent the occurrence of that intractable form of diarrhœa that is so frequently an accompaniment of this disease.

Diarrhœa.—But few cases escape diarrhœa; the patient may have costive bowels one day and diarrhœa the next. The diarrhœa is but a transference of the disease from the mouth to the intestines; the acid condition of the stomach and intestinal canal producing irritation of the mucous membrane, inflammation, and an aphthous condition of the mucous follicles is easily set up, which terminates in ulceration. Dr. Hubbard, of Ohio, regards the disease as essentially ulceration of the mucous follicles, and relates seven cases in which the following treatment was eminently successful: R.—Sulph. zinc., pulv. ipecac. āā ℥j; pulv. mastiches ℥ij; terebinth. canadens. q.s.—M. Ft. mass pilul. in 60 dividend. The sulph. zinc. in the recipe is the only one of much medicinal value, the other articles rendering the pill insoluble till the zinc can reach the diseased follicles. Abercrombie cured his case, after a great variety of treatment, with a decoction of logwood. Byford has used with benefit the vinous tincture of golden seal (*hydrastatis canadensis*). Sulph. of alum and borax has also been used with benefit. We have found trisnitrate of bismuth and pil. plumb. acetat et opii of more efficacy in controlling the diarrhœa than any other remedies. We have used all the astringents, tannin, gallic acid, persesquiuirite of iron, with more or less benefit, but none have succeeded so well with us as the bismuth and pill of plumb. acetat et opii. The bismuth may be given in doses from five grains to a drachm, as often as may be thought necessary, according to the severity of the case. It is best adapted to those cases in which the diarrhœa is persistent, but moderate. How it acts is rather speculative, but it is probably by its tonic power on the exhalants of the intestines. There probably exists a loss of power of the terminal capillary membrane, resulting from the impoverished condition of blood failing to nourish the tissues of the system normally; consequently exosmosis of the fluids is easily produced. It likewise produces a tonic influence on the ulcerated mucous follicles. It has been known, when scattered on languid granulations on the cutaneous surface, to restore them to a firm and healthy character. It is perfectly insoluble, and in passing through the bowels comes in contact with the ulcerated patches, and thus produces a local astringent, combined with a tonic influence. It is most efficacious given in the dose of twenty grains three or four times a day, and that quantity may be given every two hours. It generally requires several days to insure the good effects of the remedy, but when its effects are produced they are more perma-

ment than from any other article. In cases in which the diarrhœa is copious, and seems to rapidly exhaust the patient, the pil. plumb. acet. et opii is more prompt than bismuth, especially when the stools contain mucus tinged with blood. The acetate of lead also restrains the secretions of the stomach and intestinal canal, and assists in cutting off one source of the diarrhœa. The pil. plumb. acet. et opii may be given in the dose of three grs. plumb. acet. to one-fourth gr. of opium every two, four or six hours, according to circumstances. During the continuance of diarrhœa, the patient ought to maintain the horizontal position, and abstain from every kind of food that may disagree with the stomach and bowels.

Indication 2d. To correct the inflammatory condition of the blood by introducing into the system such remedies as will increase the corpuscles and diminish the fibrin, bloodletting has long been a remedy for inflammation, but in this affection it is wholly inadmissible, unless under peculiar circumstances. In cases with tense full pulse, extreme pain in the mouth and jaws, bloodletting in one instance was productive of great comfort to the patient, but nothing but the severity of the pain ought to induce the practitioner to bleed. When the bowels are confined and aperients are required, none has proved so valuable as the saline. Salines lessen the acidity of the urine and decrease the fibrin of the blood, and it will be found that the inflammation of the mucous membranes are less when the urine approaches to the normal state. There exists, then, less acid in the stomach, and consequently one source of irritation is cut off. Of the salines, none has proved so valuable as the tartrate of potass and soda (the common Rochelle salts); it not only acts mildly as an aperient, but produces a rapid effect on the acidity of the urine. According to the researches of Bence Jones, 120 grs. of dry tartrate of potass, dissolved in four ounces of distilled water, will render the urine alkaline in thirty-five minutes.

Salines also dissolve the fibrin of the blood, and thus render it less inflammatory, and act as antiphlogistics; especially the salts of potash are antiphlogistic by dissolving fibrin. They excite the secretions, especially of the kidneys, and thus eliminate the morbid materials from the blood. The iodide of potass, which is a favourite remedy with many, acts on the same principle as an eliminator. It is, however, better adapted to the subacute or chronic form than the acute. Salines thus act as hæmatics or blood restoratives in this affection, and are more admissible than any other antiphlogistics.

To increase the blood-corpuscles and decrease the fibrin, cod-liver oil is of the first importance. To Professor Evans, of Chicago, belongs the merit of having applied this remedy to nursing sore-mouth. In the *Northwestern Medical and Surgical Journal* for 1853, he says that, "observing the influence of cod-liver oil in preventing the wasting of the tissues of the body in cases of marasmus, especially from phthisis and tabes mesenterica, it occurred to me that it might be equally beneficial in the disease in question. I have accordingly been in the habit of giving it in French brandy or malt liquor, as might be best suited to the taste or most convenient, and generally with the happiest effects. When the patient can be induced to continue its free use, it has generally proved beneficial, and, in most instances, effected a cure." Dr. Byford also speaks in terms of confidence in relation to the curative properties of cod-liver oil in this affection, and says that it must be persevered in during the whole term of lactation, and as long afterward as any trace of the disease remains. This remedy has the advantage of any other tonic and alterative from its soothing effects on the bowels. A case that came under my care was cured by the oil, bismuth, and bicarbonate of soda, after resisting

for weeks every other treatment. The patient was reduced low, and was unable to turn herself in bed. The improvement was evident from the commencement of the cod-liver oil treatment. It is frequently difficult to get the patient to persevere in the use of the cod-liver oil; the stomach will frequently revolt at it. To obviate this, it is exceedingly necessary to pay strict attention to keep up its powers by some mild tonic and antacid, either the tincture of gentian and bicarbonate of soda, or an infusion of cascarilla bark and liquor potassæ. Alkalies are useful adjuvants to the cod-liver oil, promoting its absorption into the blood; for it is essentially necessary that the oil be absorbed to produce its beneficial influence in changing the chemical constitution of the blood. The digestive powers in this affection are too feeble to elaborate sufficient fatty materials from the food to unite with the albuminous part of the chyme, to form healthy chyle globules, which subsequently become blood globules. Hence, the introduction of cod-liver oil into the system accomplishes what the weakened powers of the stomach were not able to do. Experiment has established the fact beyond a doubt that cod-liver oil increases the blood-corpuscles and decreases the fibrin. Dr. Snow, by his analysis, shows that the corpuscles are increased by cod-liver oil taken into the system. Also Simon, by his analysis of the blood of those using cod-liver oil, records an increase of blood-corpuscles and a decrease of fibrin, although from their analysis it appears to increase the blood-corpuscles in a greater proportionate ratio than it decreases the fibrin. Again, cod-liver oil, by increasing the blood-corpuscles and bringing the blood to a healthy condition, the various secretions and excretions from the blood will approximate nearer to a healthy state; and consequently the solid contents of the urine will be lessened when they were previously in excess. An example of this effect of cod-liver oil is well illustrated in the disease diabetes, in which the specific gravity of the urine is very high, from 1040 to 1060. In this disease cod-liver oil has been found to daily and increasingly diminish its specific gravity. We found the specific gravity of the urine high in this form of stomatitis. And if the opinion of Sherer be correct, that the colouring matter of urine is decayed blood-corpuscles, we must consequently see that cod-liver oil is adapted in more respects than one to this peculiar affection. But whatever may be its peculiar *modus operandi*, experience abundantly testifies to the fact that it is of essential value in this disease, peculiar to gestation and lactation. I generally give it in the dose of a tablespoonful three times a day, an hour or two after meals. Some take it best in brandy, others in the compound tincture of cardamoms, according to the taste of the patient.

The ferruginous preparations, from their well known quality of enriching the blood with red corpuscles, and from their adaptation to some cases of feeble and impaired digestion, would seem to be very applicable to this disease. Doctor Bakus used a combination of the carbonate, rhei, aloes, and ipecacuanha, in the form of pills. Doctor Byford uses the carbonate in the following manner: Take carb. potass., sulph. ferri, āā ʒiiss; gum acacia mucilage ʒiv; pulverize the potash and dissolve in the mucilage, then pulverize and add the sulph. ferri, mix in an earthen mortar. Dose half an ounce three times a day, gradually increasing it to as much as the stomach will bear. He uses this only when there is no diarrhoea. I have found iron more valuable as a prophylactic, to prevent a recurrence of the disease, than as a curative agent during its continuance. Its action is too slow to be of much value during a paroxysm of this affection, but when used in conjunction with cod-liver oil for a length of time, its effects are very certain and permanent. In one case in which the disease made its appearance in the lat-

ter months of utero-gestation, I gave the protocarbonate of iron (Vallet's mass) and cod-liver oil, with the effect of entirely preventing a recurrence of the disease during lactation. The protocarbonate is a salt of iron that speedily finds access into the blood, and is quicker in its influence than the carbonate, which is nearly insoluble. Quevenne's iron by hydrogen is also well adapted to this condition. But when the tenderness of the mouth will admit, the syrup of the iodide is the quickest and the most efficient preparation. Iron, to be useful, must, like cod-liver oil, be persevered in for a considerable length of time, and the patient ought to be informed that unless she persevere with the remedies she need not expect relief. As a prophylactic, iron ought to be given so soon as the patient becomes pallid and begins to exhibit symptoms of anæmia. The sulphate of quinia is also a valuable tonic in this affection, in the dose of three grains twice or three times a day. It imparts power to the nervous energies of the system, promotes digestion, and exercises a controlling influence on the febrile irritation. When diarrhœa exists, I have found small doses of strychnia, combined with sulphate of quinia, of much value as a tonic, it exercising a controlling influence over the diarrhœa.

Local applications to the mouth have been found to be only temporary in their influence, and consequently of but little benefit in this affection. Nitrate of silver, hydrochloric acid, and various astringents have been used with but transient relief to the mouth. Even if the ulcers did heal under their use, another crop of vesicles soon appeared as bad as the former. Some practitioners have spoken very highly of the *Hydropiper punctatum*, with which I have had no experience, and presume that its beneficial influence, like all other local applications, is of but transient duration. So far as my experience extends, the best local applications have been nitrate of silver and dilute hydrochloric acid. I have found advantage from removing all carious teeth and salivary calculi from the mouth. Vitiated saliva from unhealthy teeth and gums passing into the stomach assists in keeping up the gastritic disturbances, to which patients with this disease are so liable.

Indication 3d To remove the causes.—A change of location has been known to result in a restoration to health, and ought to be advised when practicable. The weaning of the child has been advised by all who have written on this affection. When a wet nurse can be obtained, it is safest for the patient to cease from the function of lactation. Although it may seem repugnant to the feelings of the mother to deprive her of the pleasure of nursing her offspring, yet it becomes imperative when the disease persists in despite of judicious treatment. Although the children of patients with this affection are generally large, and apparently well nourished, yet when the disease persists for a length of time, they begin to droop and generally fall victims to bowel affections. To ascertain the cause of this bowel affection of children, I submitted the milk of one of my patients to several microscopic examinations, and although these examinations were not sufficiently numerous to advance any facts worthy of attention, yet I found that after the children began to deteriorate in health the milk, in addition to the healthy milk globules, had another globule, resembling in appearance the inflammatory globule of Gluge. I mention this as worthy of further investigation, and as bearing on the point whether it is not better for both mother and child that the mother should cease nursing. Although the cessation of lactation does not always cure, yet it puts an end to the drain on the mother's already impoverished blood; and thus, by cutting off one of the sources of disease, remedies are permitted to produce their beneficial influence without the interference of a counteracting

influence existing in the system at the same time. Hence it is best, in cases of any gravity, to advise the cessation of lactation.

Indication 4th. To prevent and counteract the secondary affections, or, in other words, the extension of the disease to organs important to the continuance of life.—To fulfil this indication the patient ought to be watched with the most sedulous attention; and so soon as either disease of the respiratory organs or of the alimentary canal manifest themselves, every effort ought to be made to counteract them, the treatment for which will be the same as that of other inflammations of these organs, bearing in mind the already impaired condition of the system. To prevent the supervention of phthisis pulmonalis, the most frequent sequel of this affection incident to pregnancy and lactation, a continuance in the use of cod-liver oil is advisable, even after the disease, to all appearance, has entirely subsided, together with strict attention to the digestive faculties, exercise in the open air, and an avoidance of all depressing causes.

In bringing to a conclusion an essay on a disease which has but of late attracted attention, and on which but little has been written, it may add to its value (if value it has) to append some illustrative cases, drawn from reading and observation. The first case I find on record is one by Abercrombie, in his invaluable work on the stomach and bowels. It is the 155th case, page 365, 2d edition, and is as follows:—

“A lady, aged 30, came under my care in the spring of 1830, affected in the following manner: She had a remarkable tenderness on the inside of the lips, the tongue, and the throat; a constant discharge of saliva, a burning uneasiness of the tongue, throat, breast, and stomach, and great uneasiness in swallowing, and for some time after it. She had a constant tendency to diarrhoea, and a feeling as if food did not remain in the stomach, but passed immediately through the bowels. There was some cough, with frequent pulse, great debility, and increasing emaciation. The throat appeared raw and a little inflamed, the edges of the tongue and the inside of the under lip were excoriated, and covered with small ulcers having inflamed margins. There was also a painful excoriation about the anus and the labia. The complaint was of three months’ standing, and had begun while she was in the puerperal state in England. A variety of treatment had been employed without benefit; she became emaciated to the greatest degree; the diarrhoea became incessant, with much pain, and a feeling as if everything passed through her immediately. She had no relief but from large opiates, and that relief was but slight and temporary. When the case appeared to be hopeless, she began to take a decoction of logwood, one oz. to one lb. of water, a wineglassful four times a day, combined with a small opiate. From this time she recovered daily, and in two or three weeks was in perfect health.”

This case shows the general character of this disease. It attacked the mucous membrane of the mouth, air-passages, stomach, and intestines, even to the extremity of the anus, and also the labia.

Doctor Brainard’s cases also go to show the general effects of this affection. The following is one of his cases, which he describes as ulcerations of the vagina during lactation:—

“A woman, aged 35 years, had been affected for a long time with pain in the back, hips, &c., for which various remedies had been used without effect. On inquiry, he found the symptoms dated from the period of lactation, and were attended with debility. On examination, several minute points were seen about the orifice of the vagina, scarcely perceptible to the eye, but which,

when the surface was touched with a solution of lunar caustic, turned white, revealing the existence of numerous ulcerated points. The appearance of minute red points upon the mucous surface, of a pale colour, he had seen in other cases, and they are well calculated to deceive, unless a solution of nitrate of silver, of about twenty grains to the ounce, is passed over the surface." He adds: "It were easy to add to these cases others, where the ulceration of the mouth alternated with diarrhœa, indicating a transfer of the ulceration from the intestinal mucous membrane to that of the mouth, and *vice versa*."

The following cases occurred under my own care; one the subacute form of the disease, and the other the acute:—

CASE I.—Mrs. W., while nursing her first child, had ulcers on the sides of the tongue; mouth very tender; child three months old, and was labouring under dysentery in a mild form; the dysenteric symptoms were relieved in a few days, after which she was placed on iodide of potass five grains three times a day, when the ulcers began to heal, and by a continuance in the remedy for a month she was entirely relieved, and continued to nurse her child. Frequent cases of a similar character came under my care, and were relieved by similar treatment.

The following is a case of the acute form:—

CASE II.—In 1851, a lady that had the disease in the subacute form in a previous nursing; this time she had suffered much during the latter months of utero-gestation from gastric derangement, acid eructations, and costiveness, alternating with diarrhœa, scanty, high-coloured urine, with a frequent disposition to urinate, which was attended with smarting and burning sensations. While in this condition she was attacked two weeks before delivery with a scalding sensation in the mouth, extending down the œsophagus to the stomach, a profuse discharge of hot burning saliva, loss of appetite and of taste, tongue very red around the edges, and in patches on the dorsum. On the second day of her illness the pain in the jaws became distracting and intolerable; discharge of hot saliva from mouth very profuse; pulse full and tense; bowels constipated; urinary secretion very scanty. Twenty ounces of blood were abstracted from the arm, which gave her great comfort by relieving the intolerable pain in the mouth and jaws. She was given a saline draught, which brought away very dark fetid evacuations, and reduced the inflammatory condition of system. The inside of the cheeks, gums, edges, and under parts of the tongue became covered with small ulcers, with a red, fiery surface around them. Nitrate of silver, and also hydrochloric acid, as a lotion, were applied to the ulcers without any apparent beneficial effects. She also took iodide of potass for several days without benefit. The stomach continued deranged, acid eructations, and a hot burning sensation at the epigastrium. The iodide potass was laid aside, and she was given an ounce of aqua calcis three times a day, and saline aperients (tartrate potass and soda) to keep the bowels soluble, which corrected the state of the stomach; the urinary secretion became more abundant; and by the application of the nitrate of silver as a lotion, the ulcers began to heal, and the mouth speedily improved. A few days after delivery, the sore-mouth returned; the tongue assumed the same aspect as before; ulcers formed on its sides and under part, and on the inside of the cheeks; a febrile condition of system, of a hectic character, existed; much gastric derangement, acid eructations, and burning of the epigastrium; coated tongue, impaired appetite, and scanty, high coloured urine, with painful micturition. The urine, on standing a few hours, threw down a copious

precipitate. She was again given saline aperients (tartrate of potass and soda), aqua calcis, and the lotion of nitrate of silver to the ulcers. After five days' treatment the state of the stomach and bowels became corrected, and the state of the mouth again began to rapidly improve; and here I noticed, that the lotion of nit. argent. had no influence on the ulcers in the mouth until the condition of the stomach was corrected. In two weeks after she recovered from the second attack; the disease again returned; mouth exceedingly tender; edges and under part of the tongue covered with ulcers; tongue furred; scanty, pink-red coloured urine; throws down a heavy precipitate on standing; frequent pulse; hectic, exhausting nocturnal perspirations; loss of appetite; pyrosis; flatulence; discharges from bowels hot and excoriating; flow of saliva abundant; emaciated fast, and began to sink low. Aqua calcis was given for burning at epigastrium, without producing the relief it had done formerly, but the bicarbonate of soda was given with a very pleasant effect. My patient at this time had not been out of bed for several weeks, and with difficulty could turn herself in bed. At this juncture she was ordered cod-liver oil—a tablespoonful thrice a day in a little brandy—sub-nitrate of bismuth five grains thrice a day; quinine two grains thrice a day; solution of bicarbonate of soda as a drink *ad libitum*. The bismuth and soda acted almost as a charm in correcting the state of the stomach, so that from this treatment in four days she was much improved. The tongue and mouth lost their fiery colour, the ulcers began to heal, the nocturnal sweats ceased, the febrile condition of system became less, and the appetite and strength began to return. The treatment was continued three weeks, when she was quite restored, and continued to nurse a fine, healthy, stout boy. It required aperients to keep the bowels soluble. The salines appeared to produce the best influence, especially the tartrate of soda and potass; the urinary secretion being more abundant after their use, and a consequent improvement of the stomach and mouth. This lady fell a victim to the disease three years afterward. She died from ulceration of the bowels, accompanied with chronic diarrhœa.

I might add other cases to the above, of a somewhat similar character. It would probably extend this paper to a greater length than might be desirable. In the foregoing pages I have tried to faithfully record my experience in this perplexing affection, together with the train of thought that the nature and pathology of the disease had suggested to my mind. The following are the authors that I have consulted on this disease, viz: Wood's Practice; the Lectures of Stokes and Bell; Byford, in the *American Journal of the Medical Sciences*; Hubbard, in do.; Shields, in *Western Journal of Medicine and Surgery*; Evans and Brainard, *North Western Medical and Surgical Journal*; and my former essays in *North Western Medical and Surgical Journal* and *Western Lancet*.